

Western Bridge Preservation Partnership



Bridge Deck Overlay Product Matrix

October 2014

Purpose

This document contains information to help the practicing bridge maintenance crew, inspector or designer in the selection of bridge deck overlay products. The product matrix presented includes all deck overlay products currently used by one of the Western Bridge Preservation Partnership (WBPP) States.

The information presented within is the result of a collaborative effort of the WBPP members and the industry representatives that manufacture these deck sealing products. Contact information for each of the product manufacture's has been included in the matrix to provide a resource for questions beyond the attributes included in this matrix.

The deck overlay product matrix presents key information that can help an agency select the most appropriate wearing surface for the project. There are a number of variables listed in the matrix that require additional discussion beyond what can be put into the matrix. The following considerations should be given when using this matrix:

- 1) **Expected Life** - The product expected life was reported by each manufacture based on proper deck preparation, mixing and placement techniques. The manufacturers were asked to report the reasonably expected life for a quality placement. It is possible that the life may exceed the time reported in the matrix if the traffic volumes are light and the climate is mild. Conversely, a poorly prepared or placed deck overlay may not achieve the time estimates listed in the matrix.
- 2) **Cure Time** - Bridge owners want to know how much time will be required before traffic can ride on a newly placed overlay. The product manufacturer's have a difficult time answering this question because of the variability of contractor practices and application equipment. For this reason, the matrix presents the **total cure time** for each layer of a multi-layer system or the cure time for a single layer system. The total is just a summation of the individual layer(s) cure time. This time does not account for deck preparation or contractor time preparing between layers or doing a final clean up after placement.
- 3) **Unit Costs** - The unit costs presented in the matrix include deck preparation, furnishing of the overlay material, placement and finishing of the overlay. Unit costs can vary substantially depending on the quantity of overlay being applied, the project location, available working time windows, placement equipment being used and general site conditions. The unit costs presented in the matrix are for typical installations. The unit costs may change over time so please check with the manufacturer's for current cost before a starting a project.

This matrix was possible because of considerable industry support. The manufacturer's of deck overlay products are your best source for information and experience that cannot be easily presented in the matrix. You are encouraged to contact these experts for any additional questions or clarifications on the products presented in this matrix. Contributing product manufacturer's include:

Product/Manufacturer	Contact Name	Phone	E-mail
Modified Concretes	Ed Liberati	502-693-3253	eliberati@hughesgrp.com
Kwikbond	Gregg Freeman	866-434-1772	gregg@kwikbondpolymers.com
PolyCarb	Dan Patacca	216-536-7777	Dan@poly-carb.com
BASF	Doug Gray	801-971-1071	doug.gray@basf.com
Transpo	Mike Stenko	914-636-1000	mstenko@transpo.com
Dayton Superior	David Minor	970-286-9229	davidminor@daytonsuperior.com
Euclid Chemical	Quinn McGuire	760-994-9445	QMcGuire@euclidchemical.com
Sika Corporation	Scott Isaac	801-580-7488	isaac.scott@sika-corp.com
E-Chem	James High	505-217-2121	james@e-chem.net

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Michael Johnson - Caltrans

Paula Allec - Caltrans Admin Support

Western Bridge Preservation Partnership – Bridge Deck Overlay Product Matrix

Field Conditions					Total Cure Time for 1st layer (hrs) (See Note 1)		Total Cure Time for 2nd layer (hrs) (See Note 2)										
	Typical Thickness Range Min - Max (in)	Min Ambient Temp at Application (F)	Max Ambient Temp at Application (F)	Moisture Insensitive at Application	At minimum reported temp	At +/- 70°F	At minimum reported temp	At +/- 70°F	Expected Life (years) (See Note 3)	Cost Range, Furnished and placed (\$/sq ft) (See Note 4)	Compressive Strength @ 24 hrs (ASTM C579) (psi)	Tensile Strength (psi)	Bond Strength (psi)	Elongation at Break (ASTM D638) (%)	Gel Time (min)	Permeability	Product Website
Deck Overlays																	
Very Early Strength Latex Modified Concrete	1 1/4" - 3"	50	85	dry	5 hours	3 hours	N/A	N/A	30 +	\$8 - \$10	5000	300	400			<750 coul	http://www.modifiedconcrete.com/
Type 1 Cement Latex Modified Concrete	1 1/4" - 3"	45	85	dry	48 hours	24 hours	N/A	N/A	30 +	\$4 - \$6	3500	300	400			<750 coul	http://www.modifiedconcrete.com/
Type 3 Cement Latex Modified Concrete	1 1/4" - 3"	45	85	dry	96 hours	96 hours	N/A	N/A	30 +	\$5 - \$7	3500	300	400			<750 coul	http://www.modifiedconcrete.com/
Kwikbond Polyester Polymer Concrete 1121	0.75-12	40 substrate	100 substrate	dry	2 Hours	2 Hours	N/A	N/A	30	\$8 - \$12	7000 composite	800 composite	>250	>35% neat resin	30-120 minutes	<100 coulombs	http://www.kwikbondpolymers.com/wp-content/uploads/2012/03/KBP-PDS-PPC-11211.pdf
Kwikbond Polyester Polymer Concrete 1121 - MM	0.75-13	40 substrate	100 substrate	dry	2 Hours	2 Hours	N/A	N/A	30	\$8 - \$12	7000 composite	800 composite	>250	>35% neat resin	30-120 minutes	<100 coulombs	http://www.kwikbondpolymers.com/wp-content/uploads/2012/03/KBP-PDS-PPC-11211.pdf
Kwikbond PPC - MLS	0.375	40 substrate	100 substrate	dry	<2 Hours	<2 Hours	<2 Hours	<2 Hours	8 to 15	3.5 - 5	>5000	3900	>300	35	30-120 minutes	<100 coulombs	http://www.kwikbondpolymers.com/wp-content/uploads/2013/08/KBP_PDS_PPC-MLS.pdf
Poly-Carb Mark 163 - Flexogrid	0.25 - 0.388	50	110	dry	6-7	4-5	6-7	4-5	15-25+	\$5 - \$7	7000	> 2500	>250	35	25-35	No permeability	http://www.poly-carb.com/products/details.asp?id=121
Poly-Carb Mark 163 FC - Fast Cure	0.25 - 0.388	40	110	dry	4-5	2-3	4-5	2-3	15+	\$5.50-7.50	8000	> 2500	>250	35	25-35	No permeability	http://www.poly-carb.com/products/details.asp?id=204
Poly-Carb Mark 154	0.25 - 0.388	40	110	dry	5-6	2-3	5-6	2-3	10-15	\$3-5	5500	> 2700	>250	50	15-20	No permeability	http://www.poly-carb.com/products/details.asp?id=116
Poly-Carb Mark 154 Safe-T-Grid	.25	40	110	dry	5-6	2-3	N/A	N/A	5-10	\$2-3	5500	> 2700	>250	50	15-20	No permeability	http://www.poly-carb.com/products/details.asp?id=116
Masterseal 350 (formerly Trafficguard EP35)	0.25 - 0.5 inches	40	95	Dry	3.5 hours	3	3.5 hours	3	5- 10 years	\$3.50-\$4.50	5500	6525 psi	>536	30	15 - 20	No permeability	http://construction.basf.us/index.php?page=infrastructure_products_byCategory_bridges&select=565&sort=ALL&filter=
Degadeck Overlay	0.25 - 0.5 inches	14	104	Dry	1 hour	1 hour	1 hour	1 hour	5 -10 years	\$1.25 - \$2.00	2400- 3000 psi	2150 psi	Not reported	35	15	approx zero	

Note 1 - The reported value is the time from the completion of the deck prep to the cure of the first layer to support traffic for a single layer system or to support the application of the second layer for a multi-layer system.

Note 2 - The reported time is the cure time required from the start of the placement of the second layer until the system can support live traffic. This will be NA for single layer systems.

Note 3 - This value is self reported by the manufacturers for the median expected service life.

Note 4 - The unit costs presented are self reported by the manufacturers and can vary by location, project size and prevailing labor rates. Costs include prep, furnish, place and finish. Contact the manufacturer for more accurate cost information.

Field Conditions	Typical Thickness Range Min - Max (in)	Min Ambient Temp at Application (F)	Max Ambient Temp at Application (F)	Moisture Insensitive at Application	Total Cure Time for 1st layer (hrs) (See Note 1)		Total Cure Time for 2nd layer (hrs) (See Note 2)		Expected Life (years) (See Note 3)	Cost Range, Furnished and placed (\$/sq ft) (See Note 4)	Compressive Strength @ 24 hrs (ASTM C579) (psi)	Tensile Strength (psi)	Bond Strength (psi)	Elongation at Break (ASTM D638) (%)	Gel Time (min)	Permeability	Product Website
Deck Overlays																	
T-48 Slurry	0.25 - 0.375	50	90	dry surface	8-12 hrs	2-4 hrs	na	na	20	\$15-\$20	5000	1800	>250	45	15-30	approx zero	http://www.transpo.com/T-48.html
T-48 Chipseal	0.25 - 0.375	50	90	dry surface	5 hrs	2-3 hrs	5 hrs	2-3 hrs	20	\$4 - \$6	5000	1800	>250	45	15-30	approx zero	http://www.transpo.com/ChipSeal.html
T-18	0.25 - 0.375	32	90	dry surface	1-2 hrs	1 hr	na	na	20	\$20-\$30	2500	1000	>250	50	10-15	approx zero	http://www.transpo.com/T-18.html
E-Bond 526	0.25 - 0.375	40	90	dry surface	3-5 hrs	1-2 hrs	3-5 hrs	1-2 hrs	20	\$3 - \$5	5000	2500	>250	55	15-30	approx zero	http://www.transpo.com/Ebond.html
Pro-Poxy TYPE III DOT	0.25 - 0.388	50	120	Visibly Dry	3-5 hrs	1-2 hrs	3-5 hrs	1.5-2.5 hrs	20 +	\$3.5 - \$5	> 5000	> 2600	3200	50	15-30	approx zero	www.daytonsuperior.com/dot3
Pro-Poxy TYPE III DOT XL	0.25 - 0.388	50	120	Visibly Dry	3-5 hrs	1-2 hrs	3-5 hrs	1.5-2.5 hrs	20 +	\$3.5 - \$5	> 5000	> 2600	3200	50	15-30	approx zero	www.daytonsuperior.com/dot3
Flexolith from Euclid Chemcial	0.125 - 0.5	40°	105°	Visual Surface Dry	5-6 hrs	2-3 hrs	5-6 hrs	2-3 hrs	20	\$3 - \$10	6500 @ 75°	2700	>300	30-45	18	<100 Coulombs, Chlorides	http://www.euclidchemical.com/files/Products/ProductFiles/techdata/Flexolith.pdf
Flexolith UR from Euclid Chemcial	0.125 - 0.5	40°	105°	Visual Surface Dry	5-6 hrs	2-3 hrs	5-6 hrs	2-3 hrs	20	\$3 - \$10	5230 @ 75°	2900	>300	30-45	19	30 Coulombs, Chlorides	http://www.euclidchemical.com/files/Products/ProductFiles/techdata/Flexolith.pdf
Sika Corp. Sikadur 22 Lo-Mod	0.25	40°	105	No standing water	24 hrs	4 hrs	24 hrs	4 hrs	10 +	\$3.5 - \$5	3150	5400	>300	30	30	<100	http://usa.sika.com/en/solutions-products/02/sika-refurbishment-solutions/02a026/02a013/02a013sa12/02a013sa12ssa99.html
Sika Corp. Sikadur 22 Lo-Mod FS (Fast Set)	0.25	40°	95	No standing water	24 hrs	3.5 hrs	24 hrs	3.5 hrs	10 +	\$4 - \$6	6000	2600	>300	40-70%	20	<100	http://usa.sika.com/en/solutions-products/02/sika-refurbishment-solutions/02a026/02a013/02a013sa12/02a013sa12ssa99.html
E-Chem EP50 - Overlay	0.25 - 0.5	50	130 (depends on aggregate distribution method)	Surface Dry, can Tolertate Rain after Installation	5.5	2.5	8	4	20+	\$3.5 - \$5.5	>5000	2500-2800	2800	32-42	16-20	0	http://www.e-chem.net/ep50-overlay/
E-Chem EPX50 - Overlay	0.25 - 0.5	50	130 (depends on aggregate distribution method)	Surface Dry, can Tolertate Rain after Installation	4.5	2	7	3	20+	\$4.0 - \$6.0	>7000	3100-3700	3100	42-52	18-23	0	http://www.e-chem.net/epx50-overlay-3/

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